DOCUMENT RESUME

ED 227 499 CS 207 403

AUTHOR Sanders, Scott Patrick
TITLE Technical Writing in Academe and in Industry: A Study Undertaken Preliminary to the Proposal of a Bachelor of Science Degree Program in Technical Communications to be Offered by the Humanities Department, New Mexico Institute of Mining and Technology.
INSTITUTION New Mexico Inst. of Mining and Technology, Socorro.
PUB DATE 11 Nov 82
NOTE 50p.
PUB TYPE Reports - Research/Technical (143) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Bachelors Degrees; Curriculum Development; *Curriculum Research; *Degree Requirements; Editing; Education Work Relationship; Employment Opportunities; *Employment Potential; Employment Qualifications; Higher Education; *Job Skills; Job Training; Occupational Surveys; Questionnaires; *Technical Writing; Writing Skills

ABSTRACT

The results of a survey of technical writing and editing, as they are taught in academe and practiced in industry, are presented in this report. The introduction explains that the survey was conducted by the humanities department of the New Mexico Institute of Mining and Technology, as the principal research preliminary to the proposal of a curriculum for a new Bachelor of Science degree in technical communications. Next, the proposed curriculum is compared with three other undergraduate degree programs in technical communications in the Rocky Mountain region and with the founding degree program at Carnegie-Mellon University. The report then discusses the current professional status of technical writing and editing through descriptive profiles of technical writing and technical writers in four different industrial settings that represent strong employment opportunities in the field. The final section of the report presents the results of a questionnaire that was designed to gather information in four areas: (1) the hiring practices of companies; (2) the desired background and preparation of technical writers and editors; (3) the on-the-job responsibilities of technical writers and editors; and (4) the employers' likely response to job applicants who hold degrees in technical communications. Finally, the report suggests that the new degree program in the humanities department will strengthen the department's traditional service role in the technological community. (Author/HOD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED227499

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

TECHNICAL WRITING IN ACADEME AND IN INDUSTRY:

A STUDY
UNDERTAKEN PRELIMINARY TO
THE PROPOSAL OF A BACHELOR OF SCIENCE
DEGREE PROGRAM IN TECHNICAL COMMUNICATIONS
TO BE OFFERED BY THE HUMANITIES DEPARTMENT,
NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY

Submitted to

Dr. James R. Corey

Chairman, Department of Humanities

by

Dr. Scott Patrick Sanders

Assistant Professor, English

November 11, 1982

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Scott Patrick Sanders

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CS207403

ABSTRACT

The report presents the results of a survey of technical writing and editing, both as it is taught in academe and as it is practiced in industry. The survey was conducted between April and October, 1982, for the Department of Humanities at New Mexico Institute of Mining and Technology as the principal research preliminary to the proposal of a curriculum for a new Bachelor of Science degree in technical communications. The Tech curriculum is compared with the three other undergraduate degree programs in technical communications in the Rocky Mountain region and with the founding degree program at Carnegie-Mellon University. The Tech program compares very favorably with the other programs on all counts. The report then discusses the current professional status of technical writing and editing through descriptive profiles of technical writing and technical writers in four different industrial settings that represent the stronger employment opportunities in the field. The final section of the discussion presents the results of a questionnaire that was designed to gather information in four areas: the hiring practices of companies; the desired background and preparation of technical writers and editors; on-the-job responsibilities of technical writers and editors; and the employers' likely response to job applicants, for both traditional technical positions and for technical writing positions, who hold degrees in technical communications. The conclusion finds that there are jobs available now in technical writing; there will be more positions opening up in the coming years; and New Mexico Tech graduates in technical communications should be uniquely well qualified to be hired for those positions. Finally, the report suggests that the new degree program in the Humanities Department will strengthen the Department's traditional service role in the Tech community: to foster literacy as the basis of all good writing; and to promote good writing throughout the Institute.

Table of Contents

INTRODUCTION ---------- 1

I. The Problem ---------- 2

ACADEMIC PROGRAMS IN TECHNICAL WRITING ---------- 3

I. History of Degree Programs in Technical Communications ---------- 4

II. Regional Programs in Technical Communications ---------- 5

III. Comparison of the Proposed New Mexico Tech Curriculum with Other Curricula ---------- 6

IV. Conclusions ---------- 12

TECHNICAL WRITING IN INDUSTRY ---------- 14

I. Professional Profiles ---------- 16

BDM Corporation--Albuqueruque ---------- 17

Sandia Labs--Albuquerque ---------- 20

Comtech Services, Inc.--Denver, Colorado ---------- 21

Digital Electronics Corporation Colorado Springs, Colorado ---------- 22

Summary ---------- 24

II. Questionnaire Responses ---------- 25

Hiring Practices ---------- 26

Desired Background and Preparation ---------- 27

Job Responsibilities ---------- 29

Hiring Response to a Technical Communications Degree ---------- 30

III. Conclusions ---------- 32

CONCLUSION ---------- 33

APPENDIX ONE ---------- 36

APPENDIX TWO ---------- 44

INTRODUCTION

Interest in a degree program for the English division of the Humanities Department has been expressed at various times over the last five years or more. This report and the current proposed curriculum have evolved directly from events that date to the summer of 1981, when Professor Corey, at the suggestion of former President Ford, prepared a tentative curriculum for a Bachelor of Arts degree in writing. Later that year, Professor Sanders and principally Professor Killingsworth prepared a grant proposal requesting money from the Fund for the Improvement of Post Secondary Education (FIPSE) to finance a study of "the exact needs of industry, business, and academics" so that "potential students could be identified; and an appropriate curriculum could be developed" for a Bachelor of Science degree in technical communications. That proposal was not funded by FIPSE. However, in April of 1982, President Ford provided funds for a somewhat abbreviated version of the proposed study, to be conducted by Professor Sanders. This report is drawn from that study, conducted from April to October, 1982. The report focuses on the information relevant to curriculum development: a descriptive and evaluative study of technical writing programs in academe and of the technical writing profession in industry. The conclusion of the report summarizes how the curriculum proposed by the Humanities Department compares to other curricula and addresses the needs of the technical writing profession, and suggests how the

new degree program may affect the role of the Humanities Department at New Mexico Tech.

I. The Problem

In a technological and thus specialized society, a need exists for trained communications experts who can smooth the way for communication among specialists and open the channels of communication between specialists and lay people. These communicators cannot indulge themselves in overspecialization, for the nature of their occupation demands a broad education, in which a general critical sense and a flexibility of intellect are developed. The people who fill such positions may have trained initially as scientists or engineers, but they have a background in writing or in literature which develops into a dominant interest; or, more frequently, they are humanities degree holders with some general scientific background and an aptitude for understanding and explaining the technical applications of science. As students, these people often must make an awkward choice either to seek the solid opportunities offered by their inclination toward technical studies, or to pursue their humanistic talents into a seemingly less secure future. A technical communications degree program should provide a positive choice for these students, integrating their humanistic talents for writing and synthetic reasoning with their technical, analytic aptitudes.

Specifically at New Mexico Tech, a technical communications program would seek to develop within a humanities curriculum the general understanding necessary to unify the student's experiences in the computer center, the chemistry lab, the geology class, and even in the print plant. The program should attract new students to the campus and retain some of those students who otherwise might transfer to other schools, perhaps disaffected by the very specialized training that New Mexico Tech's traditional technical degree programs demand. The program should also provide a clearer career objective for students electing a technical communications major in lieu of the existing Basic Sciences or General Studies degrees. However, the primary salutary effect of the program should be to upgrade the writing skills of all of Tech's graduates generally, while making available a specific competence in technical writing for those students who elect to take the program either as their major, as part of a double major, or as a minor in support of a technical degree.

ACADEMIC PROGRAMS IN TECHNICAL WRITING

Research into the existing undergraduate degree programs in technical writing was conducted nationally through a review of the literature available from the Society for Technical Communications (STC), the major professional organization for technical writers and editors. In addition, the Humanities Department has joined

the Council for Programs in Science and Technical Communications (CPSTC), but information from the Council has not arrived in time to be included in this report. Regional research was conducted through personal interviews with the directors of the technical writing programs at New Mexico State University, Colorado State University, and with an Instructor of technical writing at the Colorado School of Mines; and through telephone interviews with the directors of the programs at Oklahoma State University and South Dakota State University.

I. History of Degree Programs in Technical Communications

The first degree program in technical communications was established at Renssalaer Polytechnic Institute in 1952, conferring a Ph.D. in Communication and Rhetoric. Renssalaer did not institute an undergraduate BS degree in technical communications until 1971. In 1958, Carnegie-Mellon University (then Carnegie-Mellon Institute) began the first undergraduate BS in technical communications degree program in the country. Since 1970, more than a hundred colleges and universities have begun organized sequences of technical writing courses offered by various departments, many listed as joint programs involving several departments. However, comparatively few four-year degree programs have been established. The STC's Academic Programs in Technical Communications (1981) lists twenty-one undergraduate degree programs, of which ten award the Bachelor of Science Degree.

II. Regional Programs in Technical Communications

The BS degree program geographically closest to New Mexico Tech is a very small program (two declared majors) offered as an option within the Journalism degree program at South Dakota State University. The programs at Colorado State University and Oklahoma State University are both Bachelor of Arts degree programs, the former offered in the Journalism Department as a major in Technical Journalism, and the latter offered as an option to a traditional English degree. The undergraduate program at New Mexico State offers a minor only; it is usually elected by students majoring in technical disciplines who wish to strengthen their writing skills and credentials. The program consists of twelve hours of courses, including technical writing, advanced composition, one other writing course (creative writing may apply), and a literature course. New Mexico State offers an MA in English with a concentration in Technical and Professional Writing, but the Department maintained at the time of the interview that they have no plans to begin an undergraduate degree program in technical writing. The Colorado School of Mines has neither a formal major nor a minor program in technical writing. Mines has been revising its freshman and sophomore sequence of core courses in the humanities so that the writing courses after the first semester focus on technical writing techniques and practices. According to the Instructor at Mines interviewed for this report, the net effect is that Mines requires every student to take a single semester of technical writing presented as an advanced composition course.

III. Comparison of the Proposed New Mexico Tech Curriculum with Other Curricula

Appendix One contains the proposed curriculum for a BS degree in technical communications at New Mexico Tech as it was passed by the Humanities Department. Also included in Appendix One are descriptive announcements of the programs at South Dakota State University, Colorado State University, and Oklahoma State University representing the degree programs in the local Rocky Mountain region; and an announcement from Carnegie-Mellon University which, as the founding undergraduate degree program, is presented for comparison as a well established, "flagship" curriculum. These announcements have been photocopied from the STC's Academic Programs pamphlet. Table One below compares the five programs on the basis of nine categories and is followed by an interpretive discussion.

TABLE 1.	BS/BA, Title, Department	Required hrs. Tech. Comm.	Required hrs. Humanities	Required hrs. Sci/Tech	Computer Course Required?
Carnegie-Mellon	BS, TC and Editing, Eng.	15	12**	24	yes
South Dakota State University	BS, Journalism	0	12*	37	no
Colorado State University	BA, Tech. Journ. Journalism	6	12*	33	no
Oklahoma State University	BA, English, with TC Option	9+	30**	27	yes
New Mexico Tech	BS, Tech. Comm. Humanities	25	12**	46	yes

	Foreign Lang. Required?	Internship Required?	Minor Available?	Number of Students
Carnegie-Mellon	no	yes, 3 hrs.	no	25
South Dakota State University	no	yes, 3 hrs.	no	2
Colorado State University	yes*	yes, 3 hrs.	no	70
Oklahoma State University	yes*	yes, 3 hrs.	yes	29
New Mexico Tech	yes**	yes, 3 hrs.	yes	N/A

\+ elective courses also available
* College Core Requirement Only
** Departmental Requirement beyond College Core Requirement

1. BS/BA, Title, Department — That the program proposed for New Mexico Tech is a BS degree insures that it will be unique regionally and invites comparison with the founding technical communications degree program at Carnegie-Mellon. Of the five degree programs, only the Tech program is solely a technical communications curriculum, independent of any existing major in a more traditional discipline. The other four programs are offered as options within either Journalism or English degree programs. At Carnegie-Mellon, the technical communications major was the initial degree program in English offered by the department; however, the department now offers degrees in traditional literature, creative and critical writing, and teacher training as well.

2. Required hrs. Tech. Comm. — The most striking differences between the proposed program at Tech and the other degree programs are found in this category. Only the Tech program begins a regimen of required technical communications courses in the sophomore year, and only the Tech program requires more than twenty hours of coursework specifically in technical communications. This reflects the program's status as an independent curriculum, as opposed to an option to an existing program, that approaches technical communications in depth, offering individual three-hour courses in the major professional activities of technical writers: report writing, article writing, and the preparation of proposals and manuals. The program at Carnegie-Mellon takes another tack, offering in the junior and senior years a three-course sequence of advanced composition courses de-

signed for technical communications majors that leads to a senior-year technical writing course taught by a technical writer or editor from the industrial community outside of the University. In conjunction with this final writing course, students take a two-semester graphics and lay-out course in the Design Department, constructed explicitly for technical communications majors. The programs at the three state universities require much less in this category. South Dakota State offers no technical writing courses as such in its degree program. Students complete individually arranged projects in technical writing within traditional, senior-level journalism seminars. At Colorado State, a three-hour course in technical writing and a companion three-hour course in technical editing are the only specifically technical communications courses required to distinguish the Technical Journalism major from other students in Journalism. At Oklahoma State, the technical writing option in English students take a three-course sequence in technical writing and may choose from various electives in technical writing which they may take in lieu of literature courses from the traditional English curriculum. All four schools rely heavily on their internship programs to give their students the practical expertise in technical writing tasks that they will need later in their professional lives.

3. Required hrs.
Humanities

Except for the program at Oklahoma State which is an option to a traditional literature major and therefore requires many hours of literature courses, the minimum humanities

requirements of the programs are roughly equal. South Dakota State requires only a twelve-hour core requirement in the humanities, but most students elect more hours. The twelve-hour requirements at the other two schools and at Tech specify upper-division courses beyond college core requirements. At Carnegie-Mellon, students must take a couse in Shakespeare, a period course, an author seminar, and at least one free elective in literature, and they often take several additional elective literature courses. Although the Tech program has an equal minimum requirement in the humanities, in practice, graduates of the other programs are likely to present more hours in the humanities on their final transcripts.

4. Required hrs. Science/Tech The data in this category is difficult to interpret because each school uses a different combination of college core and departmental requirements to arrive at the total number of hours listed in the table. The Tech minimum requirement calls for twelve hours beyond the core requirements for the BS degree of thirty-four hours in science and math. The total of 46 hours represents the most extensive minimum requirement of hours in science and math. At Carnegie-Mellon, the minimum total of twenty-four hours specifies nine hours in a single discipline beyond core requirements. In practice, Carnegie-Mellon students take many more hours of science and technical courses as electives. At South Dakota, seventeen of the thirty-seven required hours make up the core requirements for a BS degree, leaving twenty hours of electives for upper-division specialization in science and technical disciplines. The other two state

universities require more lower division hours and fewer upper division hours, owing to the smaller core requirements in science and math for a BA degree. The Tech program, because of the rigor of Tech's general requirements for the BS degree, should provide a strong background in technical coursework, making the twelve hour upper division requirement comparatively sufficient for providing technical communications graduates with an adequate depth of competency in the sciences.

5. Computer Course Required? Three out of the five curricula require a computer course; the two that do not strongly advise students to take computer courses as electives. The Tech requirement involves a two-hour computer graphics and word-processing course; requirements at the other schools give the student familiarity with FORTRAN and BASIC and the common applications of the computer to technical research.

6. Foreign Language Required? The other two BS degree programs at Carnegie-Mellon and South Dakota do not require a foreign language; the requirements for foreign languages at Colorado State and Oklahoma State are core requirements for the BA degree. The departmental requirement of six hours in one foreign language should strengthen the humanities credentials of Tech graduates in technical communications and help balance their preparation in language skills and science and technological skills.

7. Internship Required? All the programs require an internship. At South Dakota, the internship is the student's only chance to actually perform technical writing tasks in a setting devoted solely to technical writing. The other three schools use the internship similarly: to provide on-the-job training, usually in the senior year, in the specific competencies that technical writers need. In contrast, the Tech internship should give the student an opportunity to validate his or her classroom preparation. Tech interns, owing to their more extensive preparation in technical communications coursework, should find themselves performing more relevant, skill demanding tasks in their intern experience. In addition, the fact that other divisions within the Institute employ technical writers gives the Tech program an ideal opportunity for meaningful on-campus internship work that would augment a summer, off-campus intern program.

8. Minor Available? Oklahoma State has more students minoring in technical writing than majoring in the program. The advantages of a minor in technical writing to a student who majors in a technical discipline are many, and are discussed in the second part of this report, "Technical Writing in Industry," in greater detail. The minor option is likely to be a popular program at Tech, and it should become an important aspect of the overall technical communications curriculum.

9. Number of Students

The Tech program, once it is fully established, is projected to have no more than twenty students at all levels majoring in technical communications, graduating approximately five students or fewer per year. Thus the program would be roughly equal in size to Carnegie-Mellon and Oklahoma State and significantly larger than the very small program at South Dakota State. The large program at Colorado State reflects the total enrollment in Journalism; no figures were available on the number of Technical Journalism majors enrolled. It is likely that students either minoring in technical communications or taking elective technical writing courses will outnumber majors in many of the technical communications courses offered. This should be beneficial, for it will provide a useful mix of students from various technical disciplines in the technical communications classes and help to integrate the new program into the more traditional curricula currently offered at Tech.

IV. Conclusions

The proposed curriculum in technical communications at Tech exhibits two areas of clear strength when compared to the curricula at the other schools studied:

1. It is an <u>independent curriculum</u>, not an option within an existing, traditional degree program. Consequently, the depth and breadth of the courses in technical communications is significantly greater; and

2. The core requirements in science and math coupled with the twelve hour departmental requirement in upper division science courses represent a much stronger technical preparation than that required by the other regional programs and also compares very well with the Carnegie-Mellon program.

The program's status as an independent degree program should enable the recruitment of freshmen students into the program: the curriculum will be unique regionally, and it can be presented as an equally valid and vital technical discipline alongside the other current degree programs at New Mexico Tech. Perhaps because their programs are structured as options within traditional curricula, none of the other regional schools recruits entering freshmen students for their technical writing programs. Also, the existence of the Tech program should heighten the awareness among all Tech students of the importance of writing in science and technology, whether or not those students ever enroll for one of the proposed new technical communications courses. The only potential comparative weakness in the program ironically stems from one of its strengths: the substantial requirements in science and technical courses, which may leave students little time to pursue complementary, non-technical coursework. Future majors in the program should probably be advised to use their elective courses first to bolster their background in the humanities, especially in literature; and second to increase their preparation in computer science. A graduate presenting only the minimum number of hours in either of these areas would likely not compare well with the average graduate of the other schools studied. However, the

fifteen hour provision for elective courses should be adequate for providing the additional coursework that a student will need.

TECHNICAL WRITING IN INDUSTRY

The study of technical writing in industry was conducted through personal interviews with technical writers and editors, and through the mailing of a questionnaire to the technical writing departments of selected companies, government laboratories, and government research centers. Contacts were chosen to represent generally a mix of potential employers who have in the past recruited or hired traditional technical degree holding graduates of New Mexico Tech. Table Two below lists the contacts.

Table 2.	Location	Reply?	Questionnaire?
Correspondence Contacts:			
Hewlett-Packard	Colo. Spgs., CO	Yes	Yes
Texas Instruments	Dallas, TX	Yes	Yes
Amoco Exploration	Denver, CO	Yes	No
Phillips Petroleum	Bartlesville, OK	No	No
Lockheed Missiles	Sunnyvale, CA	No	No
National Center for Atmospheric Research (NCAR)	Boulder, CO	Yes	Yes
Personal Interviews:			
Digital Equipment Corporation	Colo. Spgs., CO	N/A	Yes
United Technologies	Colo. Spgs., CO	N/A	Yes
National Bureau of Standards	Boulder, CO	N/A	No
National Oceanographic and Atmospheric Administration (NOAA)	Boulder, CO	N/A	No
Sandia Labs	Albuquerque	N/A	No
BDM Corporation	Albuquerque	N/A	No
Comtech Services, Inc.	Denver, CO	N/A	No

The most complete and useful responsesto the survey came from government laboratories and research centers and from the various computer industries contacted. This fact reflects two things: the importance of technical writing to research in which the immediate product of a project is a technical report; and the growth of computer documentation, as companies produce new computer hardware and software and need clearly written manuals for both in-house and public audiences. Neither Lockheed Missiles nor Phillips Petroleum replied to the initial mailing or to the follow-up query, although both are known to have technical writing departments. Amoco Exploration replied, but did not fill out the questionnaire because they have no specifically designated technical writing department. However, in nearly every case those who did fill out the questionnaire volunteered substantial additional information: the average reply was from three to five pages plus enclosures. The written data when combined with the information gathered from the personal interviews represents a broad surveying of technical writing that focuses on those industries in which technical writing is well established and which also are within the I-25 corridor from Socorro north to the Denver-Boulder area. Thus contacts made for this part of the study are not only sources of information, but also potential internship program participants and potential employers of future technical communications graduates.

The discussion of the survey that follows is in two sections. The first, drawn primarily from the personal interviews, describes the current professional status of technical writing and is meant to introduce the reader to the profession. The second section

discusses the response to the questionnaire.

I. Professional Profiles

Technical writing is an emerging profession that is only beginning to establish a strong professional identity for itself. The major professional society in the field, the Society for Technical Communications, is only twenty-five years old; and the majority of the degree programs in technical writing have, with few exceptions, come into existence in the last fifteen years. Many technical writers "back into" their profession after having been trained originally, either through schooling or work experience, in other fields. A stereotypical technical writer has a bachelor's or master's degree in one of the humanities and, usually after a varied work experience of a few years, often in peripherally technical work, secures a technical writing position by successfully presenting himself or herself at an interview as a person with a demonstrated writing ability and either some minor technical expertise or simply an "interest" in technology. Of all the technical writers and editors contacted for this study, not one has a degree specifically in technical communications. However, all of the contacts expressed their strongly positive interest in such degree programs because they feel that these programs strengthen the growing professional stature of technical writing and editing.

In part because of the emerging professional status of technical writing, the exact nature of the job itself is ill-defined: persons who do technical writing perform many different tasks in many dif-

ferent settings under widely varying job titles for often widely varying salaries. The following profiles describe technical writing and technical writers in four different industrial settings that represent a general spectrum of the stronger employment possibilities in the profession. All of the information was gathered through personal interviews.

BDM Corporation--Albuquerque

BDM refers to itself as a "professional services corporation for the public and private sector"; they will consult on or perform nearly any technical task for practically anyone. The majority of their contracts are let by the Department of Defense and involve the use of computer applications to various testing. For example, BDM is developing a technique to assess the "hardness" of the Minuteman Missile silos for the MX missile project, but BDM has also contracted to study the feasibility of profitably operating a geothermal plant in Taiwan. BDM recruits technical graduates of New Mexico Tech in nearly all of our technical majors. All of BDM's work produces a document of some kind; they hardly ever produce any hardware.

At BDM, technical writing is very important to the company. Raises and promotions are geared to the production of "winning" contracts, and the company realizes that effective writing is a factor in winning a contract. In the past, the company saw writing as the sole responsibility of the technical personnel involved in a project. Although writing is still primarily the responsibility of the technical personnel, the company has begun lately to experiment with the

use of technical writers on projects. Two people, a man and a woman, work in the "laser group" at BDM as technical writers; however, their job titles refer to them simply as "Staff Members." The man's educational background lists extensive vocational-technical school programming courses and various undergraduate liberal arts studies with no degree awarded; the woman has a BA in English and an MS in Human Services. Both work with technical personnel, writing proposals and reports, and both have individual responsibilities for documenting software programs used by the laser group. They work as professionals in writing alongside technical professionals; but, as their nebulous job titles would indicate, their professional status within the company is not yet equal to the status of the technical personnel. Both feel that this attitude within BDM is changing, and both find themselves working hard to demonstrate the professional quality and worth of what they do.

Further evidence of BDM's changing attitude toward technical writing is found in their Editing Department. Once little more than a sophisticated secretarial pool of proofreaders, the Editing Department is now a distinct, very professional branch of the Publications Department with several editors and managers. When BDM was first contacted for the survey, the managing editor interviewed was a man in his early thirties whose training included an MA in English and several years of experience teaching college composition. In his two years at BDM, the responsibilities of the Editing Department had grown and received greater and greater professional recog-

nition within the company until last spring (1982), when a position was created for an editor who would be available to work with technical personnel during the progress of a project rather than simply to act as the editor of a report documenting the completed project. The woman who holds this position has a BA in Journalism, and she finds herself now becoming more a technical writer, the creator of a text, and less an editor, the arranger and proofreader of an existing text.

BDM's experiments represent the changing face of technical writing in industry: more and more companies are involved in what might be called "white-collar engineering": they primarily produce reports, which are often read and acted upon by non-technically trained audiences; and they are recognizing the professional worth of the technical writer who can produce a readable and persuasive text that proposes or documents a technical project. At BDM, a technical editor is becoming a technical writer, with the promise that other editors may follow her; and technical writers are beginning to be recognized as professionals whose skills complement the skills of other technical personnel. Although graduates of the proposed Tech program would be overqualified for an editor's position at BDM now, they would be well qualified to work with the two writers in the laser group; and perhaps by the time the Tech program would produce a graduate, there will be a distinct Technical Writing Department at BDM.

Sandia Labs--Albuquerque

W. Lee Garner holds the Ph.D. in English literature and taught for many years at the college level before he began working as a technical writer at Sandia. He is now head of the Technical Writing Department. Sandia does not hire below the MA level, and Dr. Garner seeks Master's degree holders in the humanities to be technical writers at Sandia. In his opinion, writing ability is the paramount quality for a technical writer to possess, and persons trained in the humanities are most likely to be strong writers. Dr. Garner believes that such people can develop an adequate technical understanding on the job. He would rather "teach a humanities trained person to be technical than teach a technically trained person to be a writer."

Technical writing has a strong professional identity at Sandia. Writers work directly with technical personnel, and often their names appear jointly on the published documentation of a project. The technical writers at Sandia are an integral part of the laboratory, and they are paid on the same scale as the technical personnel ($26,000 to $32,000 for entry level with MA degree). There are currently eight writers at Sandia; Dr. Garner foresees the Department increasing to perhaps twelve members in the next few years.

Although graduates of the proposed Tech program would be under-qualified for consideration at Sandia, Dr. Garner was very supportive of the program because he sees it as a step in the profession-building process that technical writing is currently undergoing. Sandia, with its high salaries and strong professional identity, represents the

optimistic future of technical writing in general, and the pragmatic present importance of technical writing to government research, which must produce documents that present data and conclusions to non-technical audiences.

Comtech Services, Inc.--Denver, Colorado

Comtech is the entrepreneurial small business set up by two former part-time teachers of technical writing at the Colorado School of Mines. Comtech provides computer documentation to the burgeoning computer software industry in Denver. Beginning with only its founders two years ago, Comtech now hires a full-time staff of ten people who work out of a new office building in west Denver.

Comtech Vice-President Bill Mattingly began in computer documentation by doing freelance work on a part-time basis. When he and JoAnn Hackos, the founder and President of the company, realized that they were making more and more money doing computer documentation, they formed Comtech and have since shared in the growth and success of the computer industry in Denver. Comtech produces user's guides and technical manuals for new software programs: the former are written for the public; the latter for service technicians and salesmen. Most of Comtech's clients are small businesses. In a typical situation, a new software program is developed by a small company, sometimes even by an individual working out of his own home, and the developer then hires Comtech to write the documentation needed to demonstrate what the software

program can do. When such programs are sold, either to a larger company or directly to the public, the clarity of the documentation is crucial to the sale.

Mattingly was very interested in the proposed Tech program and felt that technical communications graduates with computer experience (not necessarily as extensive as a formal minor in the subject, but with a fair degree of computer literacy) would easily find employment in documentation. This field is the most active in technical writing at this time. Mattingly said that there is ample money and a great deal of opportunity in industry right now for people who can write documentation clearly for both technical and non-technical audiences. The success of Comtech would seem to bear out that statement.

Digital Electronics Corporation--Colorado Springs, Colorado

Digital is an international company that produces computers and other microelectronics equipment. Technical writing at Digital's Colorado Springs plant is done in a distinct Department of Technical Writing, directed by Dr. Art Elser, who holds the Ph.D. in English and is the former Head of the Department of English at the United States Air Force Academy. Elser began working at Digital a few years ago with little technical background or experience beyond the BS degree he earned as an undergraduate. The word at Digital is that Elser "caught on" to computers faster than anyone in technical writing had done before.

The backgrounds of the technical writers at Digital are varied: some are academics like Elser; others have no academic background at all or have been cross-trained from other departments in the company. One writer who was interviewed had no college degree, but had a great deal of experience in electronics, much of it self-taught through his experience as a repairman; and, clearly, he possesses a strong aptitude for writing. Digital officially seeks a mix of technical and humanities persons in its technical writing department; although Dr. Elser, like Dr. Garner at Sandia, personally favors humanities degree holders. Elser was positive about the Tech program because of its balance of technical and humanities courses, but he stressed the necessity of a humanities training and of literacy in general over and above the need for a basic technical background or aptitude.

Most technical writing at Digital is in-house work, writing technical manuals for sales and service personnel. They produce traditional, bound documents, but Digital is working toward the day when new hardware and software will have no "hard copy" accompanying it--the user will plug in the computer and the documentation will appear on the screen, either in textual form or perhaps even in pictures with a voice-over commentary. Some technical writers at Digital are now working with screen writing techniques, such as story-boards and scripts, to produce prototypes of this new form of documentation. The company foresees that this change in the form of documentation will also change the role that technical writers play in the development of new equipment: technical writers

are moving out into the engineering departments to see from the start what can be done with and by the newer generations of computers.

The value of technical writing is recognized at Digital, and the technical writers themselves are seen as professionals who bring an important skill to the company. Technical writers' salary levels are keyed to managerial scales: an entry-level writer with an undergraduate degree can expect about $19,500; the top of the range is about $55,500.

Summary

The professional status of technical writing and editing in industry appears to be evolving through three fairly well defined stages. In the first stage, a company maintains an editorial staff that proofreads mainly and also does some structural editing of documents written entirely by technical personnel. In the second stage, some employees work solely as writers; they have limited, but nonetheless important, contact with technical personnel at every stage of an on-going project. These technical writers may not be specifically designated as such by their job titles; in some cases, they are editors who take on new responsibilities as writers while remaining primarily responsible for editing duties. In the third stage, technical writers and editors work in separate departments and have distinct professional identities: the editors' responsibilities continue to be those described in stage one; the technical writers are responsible for proposals, reports, and

documentation, they work immediately with technical personnel on current projects, and they are recognized as professionals who contribute a valuable skill to the company.

The proposed program at Tech is designed to train persons to work as technical writers at companies in which technical writing has either attained the third stage of professional development or is moving toward that stage from stage two. Although the program will teach editing skills, its graduates will be trained to be technical writers, not technical editors. The responses to the survey indicate that the job market for such technical writers is strong at this time, especially in computer-related companies and in companies or laboratories performing government sponsored research and development. The job market also appears to be growing stronger, as more and more companies recognize the value of well written proposals and reports and seek professionally trained technical writers to produce them.

II. Questionnaire Responses

The questionnaire was designed to gather information in four specific areas: the hiring practices of companies; the desired background and preparation of technical writers and editors; the nature of the on-the-job responsibilities of technical writers and editors; and, finally, the employer's likely responses to job applicants, for both traditional technical positions and for technical writing and editing positions, who hold a degree in technical communications. Copies of the questionnaire and the announcement

of the proposed program that accompanied it may be found in Appendix Two. The discussion that follows summarizes the responses to the questions that correspond to the four areas of interest and also presents selected quotations from the more pertinent responses.

Hiring Practices: Questions 2 and 6

Do you hire persons to be technical writers or editors, or do they more often move into that position after originally having been hired in another capacity?

All responses to the questionnaire came from companies with designated technical writing departments, and therefore all reported that they do hire persons for positions titled "Technical Writer." The majority of this hiring is done by advertising and interviewing persons from outside the company, but there is also some movement within the companies of persons becoming technical writers who were originally hired in other areas, often as clerical, editorial, or technical staff. The respondent from Hewlett-Packard reported the greatest incidence of such lateral hiring: "60% are hired directly as technical writers; 40% are cross-trained from the technical staff." All of the respondents indicated that they preferred to hire from the outside before considering cross-training in-house applicants.

Do you recruit applicants for technical writing and editing positions? Would you consider on-campus recruiting for such applicants at New Mexico Tech?

Only Texas Instruments actively recruits technical writers on college campuses, and they indicated that they would recruit at New

Mexico Tech. The other companies recruit locally, often through a word-of-mouth network fostered by local membership in the Society for Technical Communications. All companies were interested in future graduates of the Tech program. In part, this study has made the Tech program part of the word-of-mouth network by establishing contacts that the Humanities Department can continue to develop, looking ahead both to internship programs and to the eventual placement of future technical communications graduates. Digital Electronics Corporation (DEC) stated that they are considering for the future both on-campus recruiting and seeking college student interns. Their initial contacts had been with Colorado State University, but New Mexico Tech is now also in their minds for their future plans.

Desired Background and Preparation: Questions 3 and 4

What preparation (degrees in what fields, experience, other background) do you look for in the persons who do your technical writing and editing?

Texas Instruments reported the greatest preference for strong technical backgrounds. This is probably due to their use of a team writing approach: the backgrounds of the writers working on a project will range from electrical engineering to foreign language study. The entire technical writing group at Texas Instruments reported the following distribution of degrees: "BSET (Electronic Technology) 40%; BSEE (Electrical Engineering) 20%. BS (Other) 20%; BA (English, History, Foreign Languages) 20%." All other respondents reported a strong preference for a person with a humanities degree and some background or aptitude in the sciences. The National

Center for Atmospheric Research (NCAR) seeks "a combination of solid language skills and basic familiarity with hard science such as could be obtained from introductory courses." NCAR expressed interest in the Tech program because "our office could improve its services markedly with the benefit of more scientific background." All respondents reported difficulty finding applicants with a truly balanced background in the humanities and the sciences, and all expressed their hope that the Tech program would furnish them such applicants. However, except for Texas Instruments, language skills are always the primary qualification: decisions on compromise candidates would be made in favor of those applicants with strong humanities backgrounds:

> I like to hire people with primary skills in language and secondary ones in technology. . . . The ideal tech writer has a degree in some writing area and a good technical background to go with it. My next choice would be a technical degree and a good writing background. My third choice would be . . . a degree in some language area and an enthusiasm for learning some technical things. My last choice would be . . . a technical degree and little writing background (DEC).

What specific skills (computer use, photo, layout, etc.) would the ideal technical writer or editor possess in addition to a basic competency in writing and editing?

At Hewlett-Packard, the ideal technical writer possesses "two years minimum tech writing; electronics hardware knowledge equal to service technician; understanding of microprocessor hardware and software; ability to write software in machine language, assembly language, and at least two high level languages." This list is rather daunting, but the respondent immediately qualified the statement by noting that "No one who starts here possesses all of the ideal skills." At United Technologies, the desired skills include

"computer word-processing, phototypsetting, drafting and/or graphic arts, and superb human communications (sic). Teaching skills are also helpful." At DEC, "the ideal technical writer . . . would have basic electronics, basic computer science, layout, printing, photography, basic illustrating, and excellent skills in interviewing and dealing with a variety of personalities."

Job Responsibilities: Question 7

What editing and writing tasks that you would consider technical are important to your company or business?

At Texas Instruments, the technical writer works on manuals "through completion . . . including customer in process reviews and final validation/verification. He frequently directs and evaluates the work of other writers . . . and is responsible for budgets, planning, shopload forecasting, and status reporting leading to final delivery." Hewlett-Packard's technical writers produce "electronic hardware repair manuals, operator's manuals for software development systems and analysis instruments, applications brochures, and training manuals for use in seminars." At United Technologies, the list is similar: "Technical procedures, specifications, customer-deliverable documents that are based on internal specifications." At DEC, the Technical Writing Department produces "user manuals, service manuals, functional specifications, training manuals, sales and marketing literature, and process sheets for manufacturing operations." At NCAR, the staff edits "scientific manuscripts for staff and writes all our publications, especially

our annual report and the UCAR Newsletter."

Hiring Response to a Technical Communications Degree: Questions 5 and 9

Would you consider a degree in technical communications from a Technical Institute (such as New Mexico Tech) requiring an extensive background in the sciences and computer use a stronger credential than a communications degree from a liberal arts college or state university?

The more technically oriented departments at Texas Instruments and Hewlett-Packard were strongly affirmative, answering "yes" and "yes--absolutely" to this question. At DEC, the answer was a qualified yes: "Probably would consider a technical communications degree a stronger credential for a tech writer. But I would consider a liberal arts degree a stronger recommendation for a technical editor. Editors with too much technical background seem to want to do too much rewriting--and the results are not necessarily better than the original." At NCAR, the answer was less enthusiastic still: "potentially, depending on the individual's specific coursework"; and at United Technologies, the answer was a lukewarm, "maybe." This range of answers reflects varying degrees of bias toward the humanities: whereas both Hewlett-Packard and Texas Instruments seek strong technical backgrounds, the other three respondents are wary of a technical background that might have been gained at the expense of the, to them, more primary skills that a strong humanities background should produce. If the information gathered from personal interviews is added to this data, the bias toward a stronger humanities background is even more evident.

Would you consider an applicant for a technical position who presents a double major or a minor in technical communications in addition to his/her technical degree more favorably than an applicant with a strictly technical degree?

Responses to this question were all positive in varying degrees. Texas Instruments was the least affirmative: "maybe--but not necessarily. It would depend on the individual." This response was similar to NCAR's: "probably, depending on the rest of the qualifications." United Technologies and Hewlett-Packard both answered, simply, "yes." DEC gave the strongest affirmative: "Definitely. Language skills take longer to learn than do technical ones, and they are more intuitive. The engineer can supply technical details, but not very often the language skills." In addition to this information, the personal interviews strongly suggest that a technical communications double major or minor in support of a traditional technical degree would be a strong asset to an applicant seeking technical employment in any field. One corporate officer interviewed indicated that an applicant with a double major in a technical discipline and in communications would be offered employment at a salary of up to $5,000 more per year than a candidate with a single technical degree; an applicant with communications as a supporting minor might expect up to $2,500 more; and a candidate with elective coursework in technical communications and a portfolio of competent student technical writing might expect favorable consideration and perhaps up to $1,000 greater salary.

III. Conclusions

The profession of technical writing is vital and expanding. Much of the profession's growth may be linked both in an immediate and in an indirect sense to the increasing use of computers in American industry and in American society in general. The immediate effect is the need for technical writers to produce computer documentation of all kinds both for the computer industry itself and for those industries that market proposals for computer applications. The indirect effect is the greater amount of raw information that computers allow industries of all kinds to generate, to organize, and then to act upon. Writing skills that may have been adequate fifteen or twenty years ago are not not up to dealing with the broader range of application that modern, "high-technology" industry confronts. Perhaps for this reason technical writing is strongest professionally in such industries. The growth of this data-producing capacity also accounts for the continued prosperity, even in hard economic times, of the"high-technology," computer-based industries. For example, BDM expects to hire, over the next two years, 800 new employees nationwide, 400 of them in Albuquerque. Some of these new employees will likely be technical writers, charged with the final organization and presentation in technical reports of the new-found data. The future of the profession appears to be quite bright.

Finally, the profession welcomes degree programs in technical communications as part of an on-going process of defining the professional skills and preparation that are fundamental for all technical writers. The response to the program proposed for New Mexico

Tech reflects this attitude: ". . . it will fill a gap that we frequently encounter in applicants' preparation" (NCAR); and "Good luck with your program. It certainly sounds like it should be a good one. I can vouch for the need for programs like it" (DEC).

CONCLUSION

Both the time and the place for initiating the proposed degree program in technical communications at New Mexico Tech are propitious. The curriculum will be unique regionally, and its academic strengths will correspond well to industry's special needs for technical writers. The Bachelor of Science degree requirements in math and science coupled with the twelve hours of upper division science or technological coursework will produce graduates with superior technical preparation. The twenty-five hours of specifically technical communications coursework will produce graduates with explicit competencies in the day to day tasks that technical writers perform, and those competencies should be affirmed by on-campus and off-campus internships. Finally, the humanities requirement should, especially when augmented by elective courses, provide the balancing humanistic preparation that most technical writing managers seek in applicants as the initial indication of their potential writing abilities. There are positions open now for technical writers, and there will

be more positions opening in the coming years. New Mexico Tech graduates in technical communications should be uniquely well qualified to be hired for those positions.

The Humanities Department has long played the role of a service department within the Tech community. With the offering of this new degree program, the Department will intensify that service role by becoming more capable of attaining the overall goal of its service: to improve the quality of the writing of all Tech graduates. The degree program will signal to students the importance of writing to the sciences and to technology because the entire Institute itself will affirm that importance by offering a degree program in writing alongside the other technical degrees that Tech has traditionally offered to date. The gain in writing skills that can be expected from Tech graduates can only accrue to the Institute's benefit: our graduates are to some extent hired, and to a greater extent promoted, on the basis of their ability to make clear to others, in writing, the special insights of their technical research. The Humanities Department welcomes this challenge to take on a larger service role and in so doing more effectively serve the entire Tech community.

Finally, the Humanities Department also must face a challenge within itself to change to meet the demands of the proposed new curriculum. The first challenge is the immediate task of developing the eight new courses in technical communications that will form the major curriculum. This can be done. But a longer range and perhaps more difficult and important challenge involves the traditional curriculum of the Department: the literature, history, language, and philosophy courses. The practical preparation, both in

the sciences and in the technical communications courses, of future technical communications graduates will be very strong; the Humanities Department's special responsibility is to provide, beyond technical writing and editing skills, the fundamental, enabling power of literacy. The Department should review its traditional courses to ensure their strength, for they will provide the literate, synthetic power that will finally transform the multi-disciplinary experience of the technical communications curriculum into a unified course of study. Perhaps this synthetic power is the organizational capability that technical writing managers seek when they voice their preference for applicants with strong humanities backgrounds. The Humanities Department's new role as the home of a technical communications degree should be its old, traditional role still: to foster literacy as the basis of all good writing; and to promote good writing throughout the Institute.

APPENDIX ONE

Descriptive Announcements of Technical Communications Curricula

New Mexico Tech

Carnegie-Mellon University

South Dakota State University

Colorado State University

Oklahoma State University

A Curriculum for a Bachelor of Science Degree in Technical Communications Department of Humanities New Mexico Tech

Summary

General Requirements: 58 hours

B.S. Degree requirements, 1981-1983 catalog, p. 39

Major: 37 hours

A. 25 hours of technical communications courses including:

TC 201	(1)	302L	(1)
202	(3)	321	(3)
250	(2)	421	(3)
301	(3)	421L	(1)
301L	(1)	422	(4)
302	(3)		

B. 12 hours in upper division literature and philosophy courses in excess of general requirements.

Department Requirements: 12 hours

A. 6 hours of Social Science in excess of general requirements

B. 6 hours of one Foreign Language.

Minor: 12 hours

Option A: Single Science or Technology: 12 hours in a single scientific or engineering discipline in excess of general requirements.

Option B: Broad Field Science or Technology: 12 hours in several areas of science and/or engineering in excess of general requirements.

Electives:

15 hours in courses in any field. 15 hours

134 hours

SAMPLE CURRICULUM

First Year			
English 111*	3	English 112*	3
History 131, 141, or 151*	3	History 132, 142, or 152*	3
Math 131*	4	Math 132*	4
Chem 121*	4	Chem 122*	4
Foreign Language**	3	Foreign Language**	3
	17		17

Second Year			
TC 201***	1	TC 202***	3
Physics 121*	5	Physics 122**	5
Biology or Geology *	4	Biology or Geology*	4
Lit, F.A., Phil.*	3	English 342*	3
Social Science*	3	TC 250***	2
	16		17

Third Year			
TC 301***	3	TC 302***	3
TC 301L***	1	TC 302L***	1
Lit, Phil.***	6	Lit, Phil.***	6
Social Science**	3	Social Science**	3
Science****	3	Science****	3
	16		16

Fourth Year			
TC 421***	3	TC 422***	4
TC 421L***	1	Science****	3
Lit***	3	Elective*****	9
Science****	3		
Elective*****	6		16
TC 321*** (summer)	3		
	19		

* = general requirement
** = departmental requirement
*** = major course
**** = minor course
***** = elective

Course Descriptions

1. TC 201 1 hr. Orientation to Technical Communication
   A survey through field trips, lectures, and guest speakers of the technical communication profession: writing, editing, proofing, layout, makeup, printing, distribution, theory. Prereq. English 112.

2. TC 202 3 hrs. Technical Communication and Advanced Composition
   Advanced study of style, tone, grammar, syntax, mechanics, and usage, applied to the shorter technical forms: letters, memos, and short reports. Use of copyreading and proofreading symbols and editing manuscripts for publication, integration of visual material. Prereq. TC 201.

3. TC 250 Lab ½ hr. Word Processing & Computer Graphics

4. TC 301 3 hrs. Report Writing
   TC 301 Lab 1 hr.
   Information gathering, assembly, synthesis, and production. Use of literature search, lab and field notes, and the results of team research to produce technical reports. Prereq. TC 201 or English 341.

5. TC 302 3 hrs. Article Writing
   TC 302 Lab 1 hr.
   Readings and writing in science for general audiences. Writing and marketing publishable articles on scientific and technical topics. Prereq. TC 201 or English 341.

6. TC 321 3 hrs. Internship
   Work during a school term or the summer in a technical communication field such as writing, gathering data, or production work for an agency such as the Bureau of Mines publication division or NMT's Information Services or an off campus agency. Prereq. TC 202 or 301 or English 341.

7. TC 421 3 hrs. Proposal and Manual Writing
   TC 421 Lab 1 hr.
   The uses of technical communication in decision-making and organization. Production of solicited and unsolicited proposals and/or operating manuals. Practice in team participation and team leadership. Prereq. 6 hrs. of TC courses.

8. TC 422 4 hrs. Senior Seminar
   Initiation, production and presentation (oral and written) of a senior technical communication project. Prereq. TC seniors.

CARNEGIE-MELLON UNIVERSITY

Program Title: BS in Technical Writing and Editing

Year Program Founded: 1958

Number of Students Currently Enrolled: 25 (in the junior and senior years)

Summary of Program: The BS in Technical Writing and Editing is a four-year degree, though the majors do not get deeply involved in the program until their junior and senior years, when they take an interrelated series of three writing courses (advanced exposition, rhetorical theory, technical writing) and an internship in business or industry. Of equal importance to the training in writing are the set of technical courses that students take throughout their undergraduate program: two courses in graphic design fundamentals; introductory courses (at the freshman/sophomore level) in calculus, statistics, and computer science; and eight additional courses from the disciplines of biology, chemistry, computer science, mathematics, physics, statistics, and engineering. In choosing these courses, each student must go at least three courses in depth in a single discipline.

This wide-ranging work in the humanities, natural sciences, technology and social sciences helps to develop the skills, vocabularies, and methods of thinking that enable the accomplished writer to translate technical information into effective communication.

Person in Charge of Program:

Beekman W. Cottrell
Professor
English Department
Carnegie-Mellon University
Pittsburgh, PA 15213
Phone: (412) 578-2850 or 2867

SOUTH DAKOTA STATE UNIVERSITY

Program Title:	BS in Department of Journalism and Mass Communication, Science and Technical Writing Major
Year Program Founded:	1950s
Number of Students Currently Enrolled:	2
Summary of Program:	The Science and Technical Writing major is a four-year course leading to a bachelor of science degree. The courses required in the program include a number of general science courses to give breadth, a journalism major in the news-editorial sequence for writing skills, and a minimum of 20 hours in either a physical science, biological science, or technology area to give depth.
Person in Charge of Program:	Richard W. Lee Professor and Head Department of Journalism and Mass Communication South Dakota State University Brookings, SD 57007 Phone: (605) 688-4171

COLORADO STATE UNIVERSITY

Program Title:	BA in Technical Journalism with a Technical-Specialized Option
Year Program Founded:	1968
Number of Students Currently Enrolled:	70
Summary of Program:	The Technical-Specialized Journalism Option provides students with the opportunity to learn a diversity of communication skills and to gain an understanding of a technical or specialized area. Students in this option take from 32 to 42 credits in technical writing, technical editing, writing for specialized publications, publications management, news writing, photography, communication research methods, public relations and related communications skills courses. Furthermore, each student takes between 21 and 45 credits in an area such as computer and information sciences, natural resources and environmental sciences, energy and geology, medical and biological sciences, business, engineering, or agriculture. Each student selects courses based on his or her interests and career objectives. Before graduation many students have the opportunity to work as professional communicators as an intern in business, in industry, in government or on campus. In addition to the technical-specialized option, the department offers options in public relations, broadcasting and news editorial.
Person in Charge of Program:	Dr. Donald E. Zimmerman Assistant Professor Technical Journalism Department Colorado State University Fort Collins, CO 80523 Phone: (303) 491-5556 or 6310

OKLAHOMA STATE UNIVERSITY

Program Title: BA in English, Technical Writing Option

Year Program Founded: 1977

Number of Students Currently Enrolled: 29

Summary of Program: The degree program in technical writing is part of the English Department's option system (other options are traditional literature, creative writing, film study and linguistics). The program flexibility allows a student to major in English, use English as a second major, or minor in English. The professional courses consist of beginning, intermediate, and advanced technical writing, and an internship. The student elects courses at all levels to complete electives (27 semester hours at the freshman-sophomore levels and 16 hours at the junior-senior levels). Thus, the graduate of the program can be a generalist having had a background in several technical, scientific, or business areas, or be a specialist in one specific area. Additional course work in manuals, technical and scientific editing, and technical and scientific literature is also available. Graduates of the program entering the job market are prepared in the basic skills of technical writing and editing, and also prepared to work with engineers, scientists, and technicians.

Person in Charge of Program:

Thomas L. Warren
Associate Professor
Department of English
205 Morrill
Oklahoma State University
Stillwater, OK 74078
Phone: (405) 624-6218

APPENDIX TWO

Announcement of a Proposed Technical Communications Major

Questionnaire: Survey on Technical Writing and Editing in Industry

NEW MEXICO TECH

SOCORRO, NEW MEXICO 87801

DEPARTMENT OF HUMANITIES

ANNOUNCEMENT OF A PROPOSED TECHNICAL COMMUNICATIONS MAJOR

Recognizing the importance of communications skills in the technological world, the Humanities Department at New Mexico Tech is considering offering a new major program in Technical Communications. The institution of this program would upgrade the writing skills of all of our graduates generally, and would also add a specific competence in communications for those students who elect the program either as their major, as part of a double major, or as a minor in support of a technical degree.

In addition to a thorough training in basic writing, graphic representation, layout, editing techniques, and other standard communications skills, graduates of this program would complete an intensive technical curriculum consisting, in part, of a minimum of two semesters' study each in Calculus, Physics, Chemistry, Computer Science, and either Biology or Geology. The application of computer technology to the field of communications would be a special focus of the curriculum.

The proposed program would take a sophisticated approach to a variety of methods of technical communications, involving students in both classroom and intern experiences within the Tech community. New Mexico Tech, a small and highly specialized college and research institute, lends itself well to such an interdisciplinary program because it is, in many ways, a microcosm of the technical world.

As part of our considerations prior to beginning the program, we are examining the roles that technical writers and editors perform in the industries in which our current graduates most often find employment. Could you help us by responding to the attached questionnaire and returning it to us in the enclosed envelope? If you know a colleague who might be more familiar with technical writing and editing in your company, would you please pass the questionnaire along to him or her?

Thank you for your time and for sharing your experience with us.

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION INSTITUTION

QUESTIONNAIRE: Survey on Technical Writing and Editing in Industry

Please respond to the following questions in the space provided. We welcome any additional comments or information you may wish to offer that the questions do not immediately address. You may use the back of this form for such comments. Thank you.

Dr. Scott Sanders, Asst. Prof.
Department of Humanities
New Mexico Tech
Socorro, NM 87801

1. Do you have employees specifically designated as technical writers or editors? (if not, skip to question #7)

2. Do you hire persons to be technical writers or editors, or do they more often move into that position after originally having been hired in another capacity?

3. What preparation (degrees in what fields, experience, other background) do you look for in the persons who do your technical writing and editing?

4. What specific skills (computer use, photo, layout, etc.) would the ideal technical writer or editor possess in addition to a basic competency in writing and editing?

5. Would you consider a degree in technical communications from a Technical Institute (such as New Mexico Tech) requiring an extensive background in the sciences and computer use a stronger credential than a communications degree from a liberal arts college or state university?

6. Do you recruit applicants for technical writing and editing positions? Would you consider on-campus recruiting for such applicants at New Mexico Tech?

7. What editing and writing tasks that you would consider technical are important to your company or business?

8. If you do not have technical writers or editors per se on your staff, who then does this work?

9. Would you consider an applicant for a technical position who presents a double major or a minor in technical communications in addition to his/her technical degree more favorably than an applicant with a strictly technical degree?